ROLLANS *Soil & Environmental Services, Inc.*

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Attached is a proposed design for an Accepted (25% reduction) Septic System with Gravity distribution for a 4 bedroom single family residence on Lot #18 Autumn Grove Subdivision, Iredell County, North Carolina.

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August 10, 2007
Project #: 01-1043
Design By: Rollans Soil and Environmental Services

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FOR WASTEWATER TREATMENT

Owner:	E&J DEVELOPMENT
Address:	227 Hideaway Lane Mooresville, NC 28117
Phone:	704-201-6465
County:	Iredell
Location:	AUTUMN GROVE LOT #18
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	N/A

Design Specifications

Drainfield Size:	475
Loading Rate (gpd/ft.^{2}):	0.275
Depth of Gravel in Trench:	NA (25% reduction)
Gravel Size:	NA (25% reduction)
Trench Depth:	36 in.
Trench Width:	36 in.
Septic Tank Size:	1000
Pump Tank Size:	n/a
Estimated Supply Line Length:	9
Supply Line Diameter:	3 in. SCH 40 PVC
Supply Line Volume:	1.57
Dosing Volume:	n/a
Supply Manifold:	drop box
Supply Manifold Length:	n/a
Supply Manifold Volume:	N/A
Recommended Float Controls:	n/a n/a
Recommended Control Panel:	n/a n/a
Pressure Head:	N/A
Friction Head:	N/A
Elevation Head:	N/A
Total Dynamic Head:	N/A
Threaded Union:	NA
Gate Valves:	NA NA
Check Valves:	NA
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services.

AUTUMN GROVE LOT #18

Project #: 01-1043

LAYOUT FOR 4 BEDROOM HOME

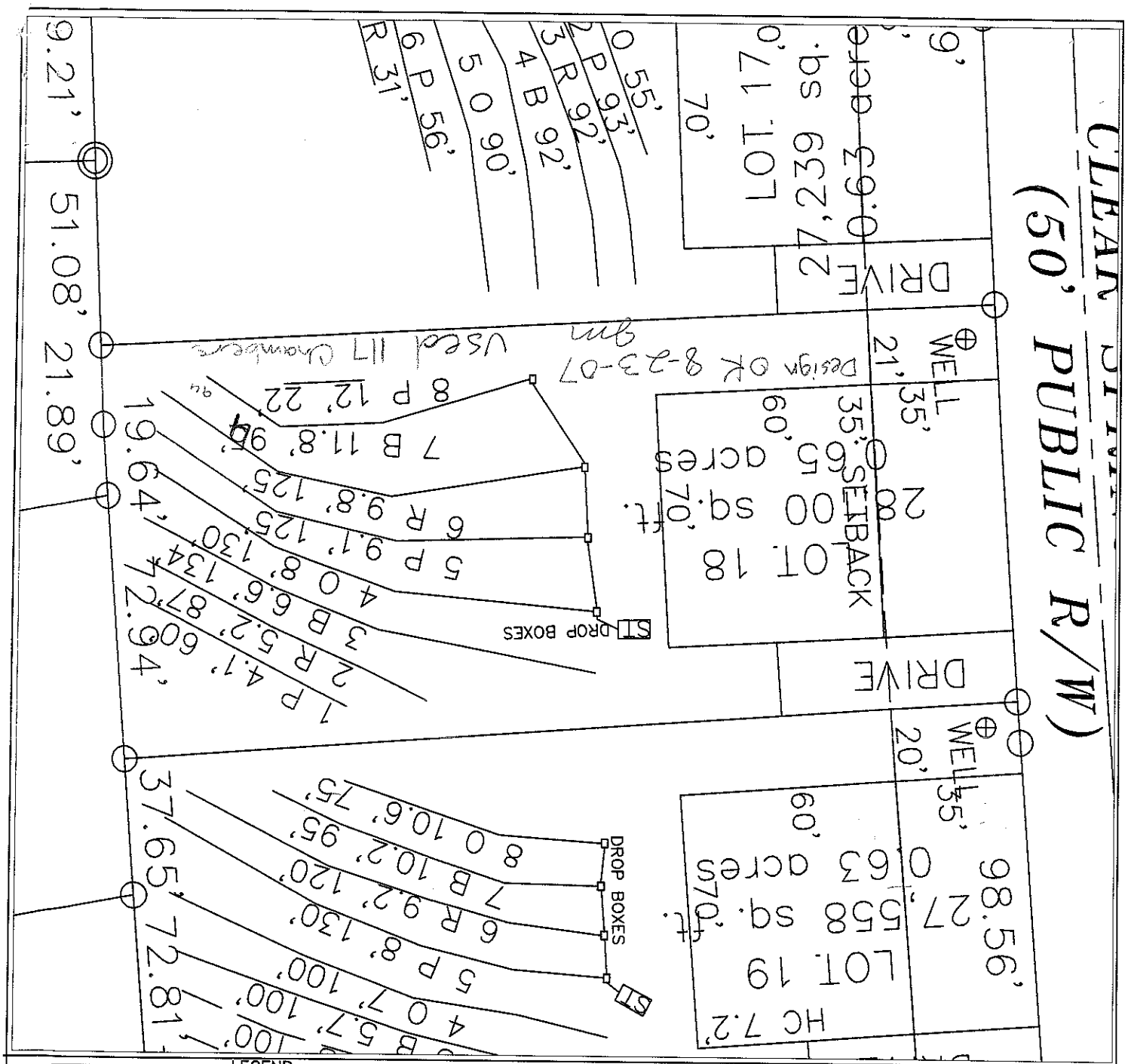
August 10, 2007

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		N/A			100.00		
INSTR. 1			N/A				
HOUSE CNR				N/A	N/A		
P. TANK				N/A	N/A		
1	PINK			N/A	N/A	60	60
2	RED			N/A	N/A	87	87
3	BLUE			N/A	N/A	134	134
4	***ORANGE***			***N/A***	***N/A***	***130***	***130***
5	***PINK***			***N/A***	***N/A***	***125***	***125***
6	***RED***			***N/A***	***N/A***	***125***	***125***
7	***BLUE***			***N/A***	***N/A***	***95***	***95***
8	PINK			N/A	N/A	22	22
					Total	**778**	**778**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
****System***	***475***	***0.275***	***ACCEPT.***	***0.275***	***25% RED.***	**GRAVITY**
Repair	303	0.275	*MOD.*	0.275	PPBPS	**DISTRIBUTION** LOW PRESSURE

Notes:

** TBM located on angle point of lot (see site plan)
**TBM is assumed to be 100'
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
**BS, HI, and FS indicate rod readings



LEGEND

- House Box.
- System lines.
- Repair lines.
- House Corner Shot.
- T.B.M.

GRAPHIC SCALE
1" = 40'

40 0 40 80

FOR PRELIMINARY PLANNING PURPOSES ONLY. ALL LOTS WILL REQUIRE FINAL APPROVAL BY THE COUNTY HEALTH DEPARTMENT ON A LOT BY LOT BASIS. THIS MAP SHOULD BY USED AS A GENERAL GUIDE, SOME ADJUSTMENTS WILL BE NECESSARY IN THE FIELD DUE TO SOIL VARIABILITY AND COMPLEX TOPOGRAPHIC FEATURES. THIS MAP ONLY REFLECTS EXISTING SOIL SUITABILITY FOR ON-SITE SEPTIC TANK SYSTEMS.

PLEASE REFER TO ATTACHED SOIL REPORT FOR ADDITIONAL SITE SPECIFIC INFORMATION

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MOBILE: (704) 746 - 5046
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MAP TITLE: SITE PLAN & DRAINFIELD AREAS		JOB # :	01-1043
PROJECT NAME: Orchard Farms LLC/ AUTUMN GROVE	LOCATION/DATE: FERNHILL, BULLFINCH RD IREDELL COUNTY, NORTH CAROLINA FEBRUARY 2007	FILE:	C:\JOBS\01-1043
		PROJECT MGR.:	C.B.F.
		FIELD WORK:	C.B.F. & A.L.P.
		DRAWN BY:	C.B.F.

CALCULATIONS

Location Autumn Grove

Project Number 01-1043

Lot No: Lot 18

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.275	$^{gpd/ft^2}$
25% RED.? (YES OR NO)	YES	
Supply Line Length	9	ft.
Supply Line Volume	1.566	gal.
Required Feet of Line	436.3636	ft.
Amount of Line from Layout	475	ft.
Gallons per Minute	N/A	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	310.175	gal.
Dosing Volume	N/A	gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	N/A	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	N/A	minutes
Elevation Head	N/A	ft.
Pressure Head	N/A	ft.
Friction Factor	N/A	ft./100 ft. *(From the interpolater.)*
Friction Head	N/A	ft.
Total Dynamic Head (+15%)	N/A	ft.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
	-0.88
25	1.27
	-1.28
30	1.78
	-1.76
35	2.37
	-2.25
40	3.03
43.07	3.48
45	3.77
48.14	4.28
50	4.58
57.11	5.89
60	6.42